west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

January 24, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-10302933, issued to TRANS ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: ANDERSON 8H
Farm Name: TRANS ENERGY, INC.
API Well Number: 47-10302933
Permit Type: Horizontal 6A Well
Date Issued: 01/24/2014

Promoting a healthy environment.

API Number: 103 - 02933

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.

2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.

3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.

4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.

5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations,* 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.

7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.

8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

103-02933

WW - 6B
(3/13)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator:	Trans Energy Inc.	494481575	Wetzel	Grant	Folsom
		Operator ID	County	District	Quadrangle

2) Operator's Well Number: Anderson 8H Well Pad Name: Anderson

3 Elevation, current ground: 1012' Elevation, proposed post-construction: 1012'

4) Well Type: (a) Gas ■ Oil _____ Underground Storage _____

Other _____

(b) If Gas: Shallow ■ Deep _____

Horizontal ■

5) Existing Pad? Yes or No: Yes

DMH
1-9-14

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Marcellus Shale - 7500' 60' thick 3000 psi

7) Proposed Total Vertical Depth: 7500'

8) Formation at Total Vertical Depth: Marcellus Shale

9) Proposed Total Measured Depth: 13,000'

10) Approximate Fresh Water Strata Depths: 60', 150'

11) Method to Determine Fresh Water Depth: Water Wells drilled in the County, information provided by Health Dept.

12) Approximate Saltwater Depths: 1525'

13) Approximate Coal Seam Depths: N/A

14) Approximate Depth to Possible Void (coal mine, karst, other): N/A

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No

16) Describe proposed well work: Drill and Complete horizontal well in the Marcellus Shale. Lateral to be approximately 6500 in length.

17) Describe fracturing/stimulating methods in detail:

A water fracture treatment is proposed a mixture of sand and water will be used to stimulate the Marcellus Shale

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18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 7.52 existing pad

19) Area to be disturbed for well pad only, less access road (acres): existing pad

103-02933

Trans Energy, Inc.
Oil and Gas Exploration and Development

1030002933

July 17, 2013

Ms. Laura Adkins
West Virginia DEP
601 57th Street
Charleston, WV 25304

Re: Void Encounter
Anderson 8H & 9H

Dear Laura,

If a Mine Void would be encountered we will run casing no deeper than 50' beyond the void and set a basket as the ceiling and at the bottom and grout/cement, and we will notify the inspector immediately.

We are also adding additional language as per the state; that we will to go **at least** 30' beyond. (§22-6-20 "*When a well is drilled through the horizon of a coal bed from which the coal has been removed, the hole shall be drilled at least thirty feet below the coal bed...*")

Once you have reviewed and would have any questions regarding this permit please feel free contact me at 304-684-7053 ext. 26 or Leslie Gearhart at ext. 32

As always thank you for your help in these matters.

Sincerely yours,

Trans Energy Incorporated

Debra A. Martin
Land Administrator

DM/dm

DmH
7-25-13

Received
AUG - 2 2013
Office of Oil and Gas
WV Dept. of Environmental Protection

210 2nd Street, P.O. Box 393 St. Marys, WV 26170 304.684.7053 Fax 304.684.3658
www.transenergyinc.com

103-02933

WW - 6B
(3/13)

20) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20	new	J-55	94	90'	90'	CTS
Fresh Water	13 3/8	new	J-55	54.5	1000'	300'	CTS
Coal							
Intermediate	9 5/8	new	J-55	36	3300'	3300'	CTS
Production	5 1/2	new	P-110	20		14000'	3000'
Tubing							
Liners							

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1-9-14

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20	26	0.438	1530	Type 1	13 cu ft/sk
Fresh Water	13 3/8	17 1/2	0	2730	Type 1	1.25 cu ft/sk
Coal						
Intermediate	9 5/8	12 1/2	.352	3520	Type 1	1.26 cu ft/sk
Production	5 1/2	8 3/4	.361	12630	Pos H Class H	1.18 cu ft/sk
Tubing						
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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WW - 6B
(3/13)

21) Describe centralizer placement for each casing string.

Fresh water string - 1 centralizer every 160'

Intermediate string - 1 centralizer every 100' from 3300' to 900'

Production string - 1 centralizer every 80' from TD to above ROP (7000')

22) Describe all cement additives associated with each cement type.

Standard Type 1 cement additives associated with each cement type.

Type 1 + 2% $CaCl_2$ + Y4# Flake - Surface Cement mixed @ 15.6 ppg $CaCl_2$, Flake (cellohane flake)

Type 1 + 1% $CaCl_2$ + Y4# Flake - Intermediate Cement mixed @ 15.6 ppg

Class H in lateral - retarder and fluid loss and dree water additive

23) Proposed borehole conditioning procedures.

Before cement casing mud will be thinned and all gas will be circulated out of the mid before cementing.

*Note: Attach additional sheets as needed.

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1-9-14

WW-9
(5/13)

Page _____ of _____

API Number 47 - 103 - 02,933

Operator's Well No. Anderson 8H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Trans Energy Inc. OP Code 494481575

Watershed (HUC 10) Slabcamp Run Quadrangle Folsom

Elevation 1012' County Wetzel District Grant

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes x No _____

Will a pit be used for drill cuttings? Yes _____ No x

If so, please describe anticipated pit waste: _____

Will a synthetic liner be used in the pit? Yes _____ No x If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

_____ Land Application
_____ Underground Injection (UIC Permit Number _____)
_____ Reuse (at API Number _____)
■ Off Site Disposal (Supply form WW-9 for disposal location)
■ Other (Explain All frac fluids will be flowed back into storage containers and Buckeye Water Service Company will haul to an approved water disposal facilities

Will closed loop system be used? Yes

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Freshwater mud until reaching Marcellus then synthetic

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? See attached

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All cuttings will be hauled to approved landfill DMH

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) No Pit 1-9-14

-Landfill or offsite name/permit number? Short Creek Landfill SWF - 1034

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

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JAN 10 2014
WV Department of
Environmental Protection

Company Official Signature _____

Company Official (Typed Name) Leslie Gearhart

Company Official Title VP-Operations

Subscribed and sworn before me this 17th day of December, 2013

Debra A Martin _____ Notary Public

My commission expires November 29, 2020

OFFICIAL SEAL
STATE OF WEST VIRGINIA
NOTARY PUBLIC
Debra A. Martin
Trans Energy Incorporated
210 2nd Street
St. Mary's, WV 26170
My Commission Expires Nov. 29, 2020

103-02933

Form WW-9 1030002933 Operator's Well No. Anderson 8H

Trans Energy Inc.

Proposed Revegetation Treatment: Acres Disturbed Existing Pad. Prevegetation pH _____

Lime 2 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 600 lbs/acre (500 lbs minimum)

Mulch 90 Bales Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Meadow Mix	100	Meadow Mix	100
Oats or Rye	50	Oats or Rye	50

Attach:
Drawing(s) of road, location,pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [signature]

Comments: _____

Title: Oil & Gas Inspector Date: 7-25-13

Field Reviewed? (✓) Yes ( ) No

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103-02933

07/23/2013

TRANS ENERGY INC.

DMH 1-9-14

DMH 7-25-13

WELL SITE SAFETY PLAN
Anderson 8H

Water Management Plan:
Primary Water Sources

WMP- 01506	API/ID Number:	047-103-02933	Operator:	Trans Energy Inc.
		Anderson 8H		

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED OCT 1 1 2013

Source Summary

WMP- 01506	API Number:	047-103-02933	Operator:	Trans Energy Inc.
		Anderson 8H		

Stream/River

- Source **Ohio River @ J&R Excavating** Marshall Owner: **J&R Excavating**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
4/15/2014	4/15/2015	6,300,000		39.998509	-80.737336

☑ Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): **2,940** **Min. Gauge Reading (cfs):** **6,468.00** **Min. Passby (cfs)**

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: http://www.erh.noaa.gov/ohrfc//flows.shtml

Source Detail

WMP- 01506 | API/ID Number: 047-103-02933 | Operator: Trans Energy Inc.

Anderson 8H

Source ID: 26996 | Source Name: Ohio River @ J&R Excavating

J&R Excavating

Source Latitude: 39.998509

Source Longitude: -80.737336

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 25000 | County: Marshall

Anticipated withdrawal start date: 4/15/2014

Anticipated withdrawal end date: 4/15/2015

Total Volume from Source (gal): 6,300,000

Max. Pump rate (gpm): 2,940

Max. Simultaneous Trucks: 0

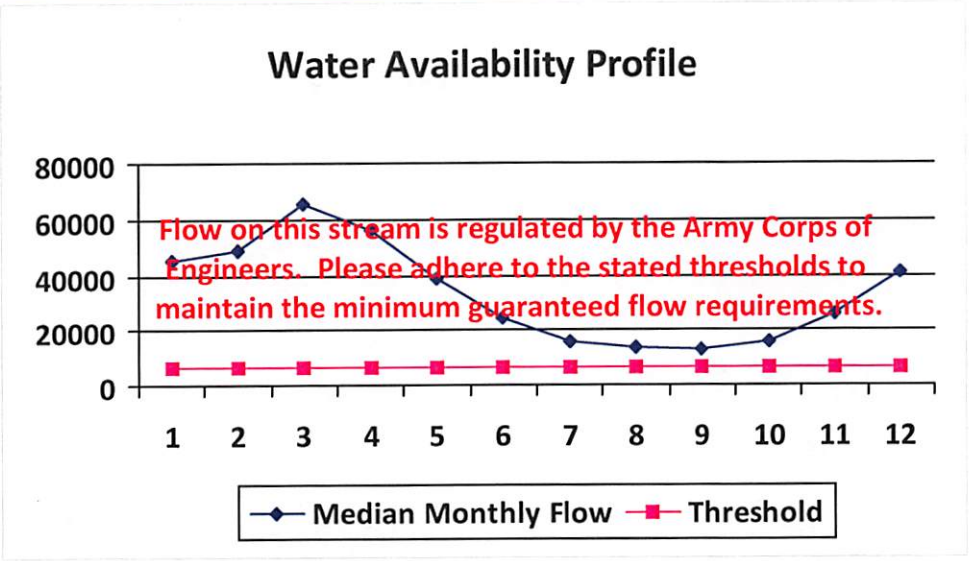
Max. Truck pump rate (gpm)

- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [x] Regulated Stream? — Ohio River Min. Flow
- [ ] Proximate PSD?
- [x] Gauged Stream?

Reference Gaug: 9999999 | Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00 | Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	0.00
Downstream Demand (cfs):	0.00
Pump rate (cfs):	6.55
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

Water Management Plan:
Secondary Water Sources

WMP-01506 | API/ID Number 047-103-02933 | Operator: Trans Energy Inc.

Anderson 8H

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Lake/Reservior

Source ID: 26997 Source Name: Anderson Farm Pond

Source start date: 4/15/2014

Source end date: 4/15/2015

Source Lat: 39.45916 Source Long: -80.60504 County: Wetzel

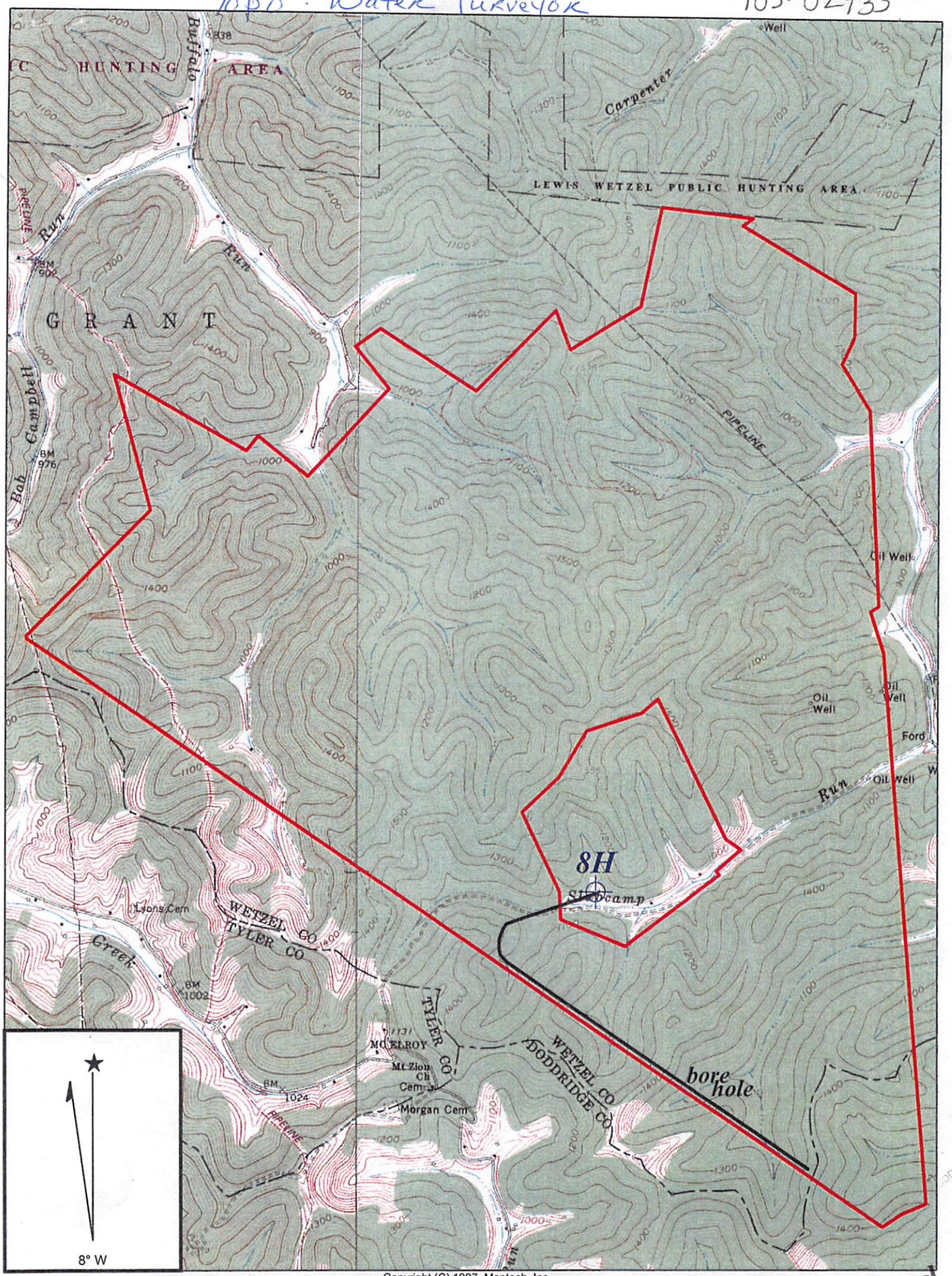
Max. Daily Purchase (gal):

Total Volume from Source (gal): 6,300,000

DEP Comments:

Topo · Water Purveyor

103-02933



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FOLSOM QUADRANGLE

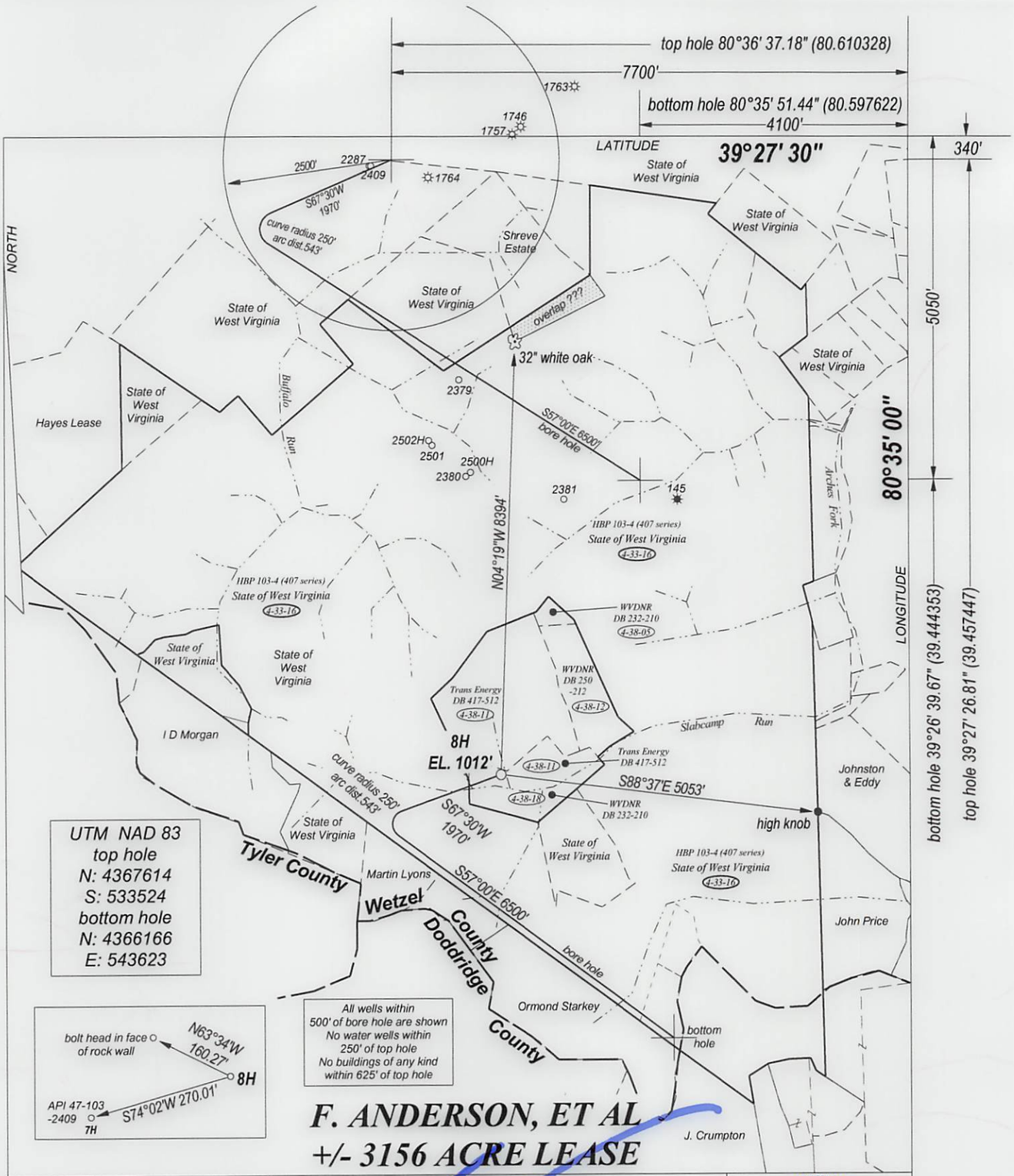
SCALE 1" = 2000'

TRANS ENERGY, INC.

WELL: ANDERSON 8 H
F. ANDERSON, ET AL 3156 ACRE LEASE

103002933

GRANT DISTRICT WETZEL COUNTY WEST VIRGINIA



F. ANDERSON, ET AL
+/- 3156 ACRE LEASE

FILE NO._____
DRAWING NO._____
SCALE 1" = 2500'
MINIMUM DEGREE OF ACCURACY 1 : 200
PROVEN SOURCE OF ELEVATION GPS' OBSERVATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENERGY.

(SIGNED)_____
PROFESSIONAL SURVEYOR: 551

WILLIAM R. MOSSOR LICENSED No. 551 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
DIVISION OF OIL AND GAS

DATE JULY 24TH, 2013
OPERATORS WELL NO. ANDERSON 8H

API 47 - 103 - 02933 H6A
STATE COUNTY PERMIT

WELL TYPE: OIL XX GAS XX LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF GAS) PRODUCTION XX STORAGE ___ DEEP ___ SHALLOW XX

LOATION: ELEVATION 1012' WATER SHED SLABCAMP RUN
DISTRICT GRANT COUNTY WETZEL QUADRANGLE FOLSOM

SURFACE OWNER TRANS ENERGY, INC. ACREAGE +/- 166
OIL & GAS ROYALTY F.ANDERSON,ET AL LEASE AC. +/- 3156

PROPOSED WORK: DRILL XX CONVERT ___ DRILL DEEPER ___ REDRILL ___
FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___
OTHER PHYSICAL CHANGE IN WELL DRILL HORIZONTAL
PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___

TARGET FORMATION MARCELLUS SHALE ESTIMATED DEPTH 7500'

WELL OPERATOR TRANS ENERGY, INC.
ADDRESS P. 0. BOX 393
ST. MARYS, WV 26170

DESIGNATED AGENT LOREN BAGLEY
ADDRESS P. 0. BOX 393
ST. MARYS, WV 26170

FORM WW - 6

COUNTY NAME PERMIT